

FCC
Washington, D.C. 20554

May 19, 2003

Reference: FCC Proceeding 03-104 (Broadband Powerline Communications)

Ladies and gentlemen:

Allow me to caution you in my most sincere way the dangers of Broadband Powerline Communications, as will likely affect High Frequency (3 to 30 MHz) (radio) communications.

Ordinary 60 Hz power transmission lines are obviously adequate for near-DC (direct current) power transmission, for 60 Hz power transmission and for limited powerline industry low-data-rate signaling or 'telemetry and control' functions near 50 to 100 kHz. Above about 200 kHz such lines appear as significant radiators, that is, essentially antennas. Various power lines, from 2 200 to 500 000 Volts with their myriad transformers, power factor capacitors, giant switches and other appurtenances are all capable of significant radiation as the attached devices will act, to varying degrees, as reflective "obstacles" on/across the lines, for frequencies above about 200 kHz. Such power line systems were never intended to carry signals containing such "radio" frequencies above about 400 kHz.

There is another view: Leaky or otherwise damaged cable TV lines radiate in the same way and have been identified in many difficult radio interference episodes including disrupting the public safety bands near 150 MHz.

The HF spectrum is far too valuably (and sensitively) employed to be put at risk, particularly considering the Commission has provided so much other spectrum for wireless point-point and point-multipoint wideband distribution, particularly above about 30 GHz. The national power grid is an extremely poor means to carry such wideband distribution, with likely serious consequences to many, if not all, incumbent HF Services.

With yet another view: Authorizing use of the national power grid for wideband distribution systems would almost certainly stunt the emerging wireless services alluded to above, which, hopefully, will spark a renaissance in domestic microwave and millimeter wave system builders and service providers.

My sincere, and strong advice: Wideband distribution is correctly carried in the millimeter wave bands over relatively short point-point and point-multipoint links. Wideband distribution on wire power grid systems never designed for such purpose is, in the kindest word I can muster, folly.

Sincerely,

Dan A. Bathker
NASA-Jet Propulsion Laboratory
Pasadena CA 91109
Via email

FCC CORES Registration Number: 0001-9335-22